



Port of Lewiston

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March 29, 2000

LTC William E. Bulen, Jr
Department of the Army
Walla Walla District Corps of Engineers
Attention: Lower Snake River Study
201 North Third Avenue
Walla Walla, Washington 99362-1876

Dear LTC Bulen:

The Port of Lewiston provides its comments to the COE with the hope that meaningful alternatives which actually contribute to the recovery of Pacific Northwest salmon will be the final outcome of the DEIS. We all want to see continued salmon runs in the Pacific Northwest. However, we expect the United States Government to take a sensible, cost-effective approach to recovering salmon.

Navigation Issues - Transportation Analysis in the Economic Appendix

Attached as "Exhibit 1" is an indepth review of the Transportation Analysis in the Economic Appendix of the DEIS. We have spent considerable time and expense to develop this information for your consideration in the DEIS. We believe that it is imperative that these issues be addressed by the Corps and incorporated in the final EIS.

The DEIS Is Focusing on the Wrong Problem

The draft EIS begins on the wrong track by focusing on a tiny piece of the broad problem of salmon recovery in the Pacific Northwest: the week or two when juvenile salmon migrate downstream past four dams on the Snake

River. This astonishingly narrow focus distracts from the primary problem in northwest salmon recovery: fishery agency mismanagement.

All over the world, fisheries are collapsing from over fishing, as one species after another is fished to near extermination. The first step in any salmon recovery program has to be reforming fishery management. We believe that it is fundamentally wrong for one Federal agency to propose to spend billions of dollars on salmon recovery at the same time another Federal agency issues permits so the same fish can be caught and sold for pennies a pound.

1 | We cannot understand why the Corps proposes, as an alternative, to remove the four lower Snake River dams when the latest research <<http://www.nwfsc.noaa.gov/pubs/white/passage.pdf>> by the National Marine Fisheries Service shows that juvenile salmon survival through the dams is as high or higher than it was in the 1960s and 1970s, when salmon runs were much healthier. Indeed, salmon runs increased for several years running after the last Snake River dam was built. Most of the salmon runs in the Pacific Northwest that have been listed for protection under the Endangered Species Act don't pass any dams. On the East Coast, they are proposing to remove dams because of declines in the shad population, but Columbia and Snake River shad populations have increased dramatically since the dams were built. Real world data just doesn't support the idea that dam removal is necessary for salmon recovery.

Many years ago, when large fish kills were reported in the vicinity of dams on the Columbia River, there was a case to be made that dams formed some sort of bottleneck for salmon recovery. But better data and substantial improvements in fish passage demonstrate that the continued existence of Snake River dams is perfectly compatible with salmon recovery. It is imprudent to propose enormously expensive and disruptive programs to take out dams, when there is every reason to believe that much more significant salmon survival problems are elsewhere.

The Analysis Is Inadequate and Biased

2 | While migrating salmon obviously require water to migrate, the Snake River does not run dry or even nearly so. The most recent studies show that the millions of acre-feet of water that have been released downriver in the spring for salmon, wiping out reservoir recreation at many locations, have been

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cont.

wasted, as they had and have no measurable effect on juvenile salmon survival. Yet the DEIS cites outdated and discredited studies claiming a flow/survival relationship, without any attempt to distinguish good science from "junk science". The flow augmentation program costs hundreds of millions of dollars and achieves nothing, making it the least cost-effective salmon recovery program now underway. The failure to propose an alternative plan that would stop wasting all that water is incomprehensible.

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The DEIS also proposes to take actions to protect juvenile salmon without any regard to effects on returning spawning adults, whose survival is much more important for the next generation of salmon. Radio-tag data show that adult survival is higher through the dams than through a natural river, yet the Corps proposes a dam removal alternative without any attempt to balance adult losses with juvenile gains. Releasing water downstream for juveniles exhausts adults, yet this is not even taken into account in the DEIS. The DEIS points out effects of dam removal that could obviously kill salmon, like projected summer temperature increases of up to 91, yet fails even to mention the significance of these changes.

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Many people depend upon these dams and their low-cost, clean, and renewable hydropower. While the DEIS refers to the added pollution and costs that would come from removing these dams, the DEIS only begins to scratch the surface of the real costs involved, and bases its analysis on highly questionable assumptions. For example, the Corps assumes that the 3500 megawatts of dam power can be replaced with only 890 megawatts of new power stations. This is based upon computer models that the public have not had the opportunity to review. Additionally, the Northwest Power Planning Council predicts that there is a 1 in 4 chance that we will experience power shortages by the year 2003. This does not agree with the Corps power supply analysis.

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The DEIS is also projecting benefits from dam removal that are far-fetched. No one really believes that removing four dams will cause hordes of tourists to come to Eastern Washington and spend \$150 million a year, which the DEIS identifies as the single largest benefit of dam removal. Anyone can write a survey that will get people to say they'll come and visit, but common sense says development brings more people than anti-development. The DEIS offers endless speculation about how dam removal could be beneficial, yet is tight-lipped about environmental and fishery benefits from the dams.

Corps Should Provide Leadership for Sensible Solutions

6 Most importantly, the Corps should exercise leadership in salmon recovery by broadening its focus to actions that all government agencies can take, not just actions the Corps can take. Indeed, according to the Council on Environmental Quality, the Corps was supposed to include "reasonable alternatives not within the jurisdiction of the lead agency" in its EIS. And the Corps should exercise leadership in salmon recovery by identifying a preferred alternative in a revised draft EIS.

Positive alternatives for salmon recovery that are omitted from the draft EIS that which deserve full evaluation include:

Grow more salmon: Government-run hatcheries club "excess" salmon to death, strip out the eggs, and sell them. These eggs should be planted in hatchboxes all over the Pacific Northwest. If hatchery fish compete too much with wild fish, pick some hatchery rivers and some wild rivers.

7 Reform harvest management to protect wild stocks: Hatchery runs of salmon can always survive higher harvest rates than wild stocks. So long as fishery managers set harvest rates based on how many hatchery fish there are, the wild stocks will inevitably decline. It should be easy to set harvest rates to protect the weakest stock managers chose to list as endangered. Current mixed-harvest rates of 50% and up obviously will not work for listed stocks.

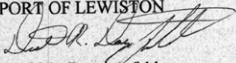
Remove huge new colonies of salmon predators: Huge colonies of birds and marine mammals created through Federal directives and Corps actions collectively consume far more endangered salmon than the Snake River dams.

Stop "junk science": Government-run research is producing reams of "junk science", much of it buried in this draft EIS, that fuels bad policy. Instead of collecting solid data on salmon survival, the Federal government funds the development of complicated computer models that are based on assumptions rather than data, and produce results inconsistent with common sense.

Electric ratepayers in the Pacific Northwest and national taxpayers have spent hundreds of millions of dollars fixing dams in the Pacific Northwest to protect fish runs. Any objective analysis shows that the Corps has achieved enormous improvements in survival. Isn't it time to move on, and try to focus Federal resources on changes that can actually make a difference for Pacific Northwest salmon? We hope that the Corps can be a voice for common sense in salmon recovery.

Sincerely,

PORT OF LEWISTON

A handwritten signature in dark ink, appearing to read "David R. Doeringsfeld", written over the printed name.

David R. Doeringsfeld
Manager

EXHIBIT 1

NAVIGATION ISSUES, PORT OF LEWISTON

Appendix I Economics
Corps FR/EIS, dated December 1999

Along with some other small upriver Ports the Port of Lewiston has been involved with DREW as a member of the Navigation Study Group. We have attended numerous meetings with the Corps and others. During the course of the study, we assisted in communication with our community, Port customers, and river users. We are aware that this is a planning process, which the Corps intends to make as public and as transparent as possible and we endorse that commitment.

We became increasingly familiar with the NED evaluation concept as the study progressed. In our earlier participation as contributors and reviewers, we felt compelled to look at the planning effort from the point of view of our Port constituents. We eagerly participated as small Ports in fear that a decision on dam breaching could essentially wipe out some of our economic base. We see drawdown as a life-changing event here at Lewiston. Most of all we fear that elimination of our inland waterway system could happen without reasonable certainty that endangered salmon stocks would be helped at all. Our Port customers are adamant that their livelihood would be put in jeopardy for an experiment.

We do not object to programs that put federal resources to work on recovery of endangered species. Actually as a small river community, we see the social and economic benefits that can be derived from healthy ecosystems. Our major concerns are with the transportation analysis in the Economic Appendix:

As a small river community with the potential for serious impacts we do not want our local concerns to be washed out of the NED analysis. We are wary of the explanation that many effects that are exclusively local will be considered to be economic transfers. We know that will zero them out of any NED cost effectiveness evaluation.

Since the NED criteria are being used, we want the NED model to be properly applied to the decision process. Therefore we insist that the evaluation of navigation must be consistent with the federal guidelines for NED evaluation.

Our familiarity with shipping causes us to question some of the key assumptions in the economics.

The numerous "unresolved issues" are left without proposed solutions, and some of them could have a major impact on the economics.

We have reviewed the navigation portion of the economic appendix and take issue with some of the analysis. In the following discussion, we describe areas where we have strong objections.

KEY ASSUMPTIONS

There are numerous assumptions stated in the report. By being silent on many we do not necessarily agree with them, we merely elect to focus on our exception to two key assumptions at the present time. These two assumptions are so important that buying into them would cause severe limits to be put on the identification of economic effects. The first appears on page I3-60 and is basically that capacity can be increased with little impact upon long run marginal costs, average costs, or unit costs. The second is on page I3-61 and is that current and projected levels of exports from the region will continue to be maintained.

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The first has the effect of giving zero value to an estimated \$531 million need for increased transportation capacity if the dams are breached. The basis for our disagreement with this assumption is our estimate that it is impossible to recover this expense without an increase in incremental cost.

The second assumption put an unrealistic restriction on the analysis by ruling out potential alternative export routes. The effect of this assumption is to ignore tonnage that might be displaced to other points of export. Such displacement could only be shown if the first assumption is removed and marginal cost is shown to be higher than through other points of export. The assumption had the effect of restricting the study area and placing an artificial limit on assessment of economic and environmental effects. This could be viewed as contrary to the purpose of an EIS.

UNRESOLVED ISSUES

There are numerous "unresolved issues" stated in the report, see section 3.3.8. Sooner or later they will need to be resolved because they could be viewed as being significant. We note that the official peer review body, the IEAB, had brought up some of them in their original concerns. We agree with the IEAB position that transportation models need to demonstrate realistic outputs prior to being applied as part of the economic analysis.

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With regard to storage and handling costs at \$6.50 per bushel, the FR/EIS notes that this cost is higher than the value of the wheat itself. The Corps treats this as not significant by saying the error is on both sides of the cost comparison. We however would like to see correct costs included throughout the entire analysis.

The mixing of rates for handling and storage, with costs for shipping, is inconsistent. Since costs and rates have been mixed it is practically impossible to consistently quantify the NED effect. We would like to see costs used throughout the analysis.

The NED effect of cross-river traffic has been ignored. We would like to see this evaluated and included. A breaching of the dams causes a decrease in our cross-river transportation options. From our point of view we see this as a potential increase in cost and a major inconvenience.

ASSOCIATED COST LEFT OUT

For the NED analysis, the Corps is supposed to be estimating the difference in cost of delivering a commodity.¹ One way to do this is to add up all of the costs, and another way is to rely on rates when the rates are equal to long run marginal costs² (LRMC). If the Corps elects to add up the costs, they need to include all costs needed over and above project measures to achieve the benefits.³ This includes cost of new capacity where there is specific evidence that capacity is not adequate.⁴

Associated costs are sometimes mistakenly overlooked when they do not have to be paid by either the Federal government or the non-Federal partner. When private industry and individuals must incur some cost to be able to consume or make use of project outputs, these are NED costs.⁵ For example, associated costs of a navigation project may include new docks and terminals needed for with but not without-project conditions.⁶ The same holds true when new facilities are needed because of rail requirements.

There are two ways to treat associated cost. They can be "netted out" in the treatment of benefits, or they can be shown separately as a cost. If they are accounted for in the benefit calculation, they are part of the transportation cost comparison with and without the project. Alternatively, they may be shown as a cost in the presentation of NED costs. It is preferred they be shown as costs.^{7 8 9} The Corps has left the associated cost of new infrastructure out of the NED evaluation. Using the high estimates in the FR/EIS, these costs would add as much as \$531.7 million to the capital cost of breaching.

INCREMENTAL COST UNDERSTATED

In the event of dam breaching some of the tonnage will be transferred to truck and some to rail. New rail movements are estimated at 1.1 million tons.¹⁰ Added cost of rail infrastructure

¹ Economic and Environmental Principles and Guidelines for Water and Related Land Resource Implementation Studies, (P&G) as presented in Corps of Engineers Engineer Regulation ER 1105-2-100, para 6-71, b.

² P&G as presented in Corps ER 1105-2-100, para 6-66 b.

³ P&G as presented in Corps ER 1105-2-100, para 6-145

⁴ See P&G as presented in Corps ER 1105-2-100, para 6-68 for guidance, also see FR/EIS page 13-80 for infrastructure requirement

⁵ National Economic Development Procedures Manual NED Costs, IWR Report 91-R-13, IWR Report 93-R-12, June 1993, page 60

⁶ National Economic Development Procedures manual, Overview Manual for Conducting National Economic Development Analysis, IWR Report 91-R-11, October 19921, page 42

⁷ P&G, as presented in Corps ER 1105-2-100, para 6-153, b.

⁸ National Economic Development Procedures Manual Deep Draft Navigation, IWR Report 91-R-13, November 1991, page 13

⁹ National Economic Development Procedures Manual NED Costs, IWR Report 91-R-13, IWR Report 93-R-12, June 1993, page 13

¹⁰ FR/EIS page 13-78

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for this 1.1 million tons is estimated at \$50 million¹¹ using the low estimate in the report. The \$50 million has an annualized value of about \$3.5 million. This annualized infrastructure cost is the increment of fixed costs needed to service the 1.1 million tons. As a fixed cost, it represents only about 30% of the total LRIC of shipping the added 1.1 million tons by rail¹². Total annual LRIC would therefore be estimated by $(\$3.5 \text{ million} / .30) = \11.7 million . This equates to an LRIC of \$10.64 per ton including incremental fixed and incremental variable cost.

If one uses the higher rail numbers out of table 3.3-19, the annual infrastructure requirement WITHOUT adjusting for incremental variable cost comes out to be \$79 million or about \$5 per ton. Add in the estimated increment of variable cost and you see the high end of the LRIC per ton becomes \$16.76.

The associated cost of the new rail infrastructure by itself (without truck related infrastructure) exceeds the Corps claimed total increase in all truck and rail cost illustrated in Table 3.3-20 (\$3.45 - \$6.46 per ton). We feel that associated costs have not been included in the analysis.

To construct an extreme example to make the point more clear, total rail and truck related infrastructure needs because of dam breaching are estimated to be as high as \$531,703,000 in the FR/EIS. At 6 7/8% this has a 100-year annual value of \$36.6million. Divide the \$36.6 million by the 3.8 million total tons displaced to rail and truck and the incremental capital cost per ton is \$9.63. This \$9.63 is higher than any of the costs shown in Table 3.3-20, but even at \$9.63 per ton, the incremental variable cost has yet to be added in. This is a significant concern because variable cost of truck and rail operations ordinarily make up about 60% of total cost¹³. If we add in the variable cost, the cost per ton will triple.

The major flaw in the Corps analysis is that the entire associated cost of infrastructure has been left out of the opportunity cost analysis. The opportunity cost of losing the river transportation provided by the four Snake River dams has been understated by \$36.6 million annually.

With all of the costs included, shipping would be so costly that some of the tonnage could probably be shipped at less cost through non-Columbia River ports. This potential displacement to other ports has not been addressed in the FR/EIS.

The magnitude of the understatement of NED cost (potential \$36.6 million annually) is larger than the \$24 million navigation opportunity costs, \$15.4 million irrigation costs, \$20.7 million for Fish and Wildlife mitigation costs, and \$4.9 million cultural resources mitigation costs.

¹¹ Selected line items from FR/EIS page I3-80, table 3.3-19

¹² Uniform Rail Costing Model components from Reebie Associates RCAM V6.2 Copyright (C) 1989

¹³ Mark Berwick and Frank Dooley, Upper Great Plains Transportation Institute, North Dakota State University, MPC Report 97-81, October, 1997, 53 pp

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It is within 24% of the total annual cost of breaching the four dams.

CAPACITY ANALYSIS IN QUESTION

The FR/EIS refers to a study done by TVA /Marshall University ¹⁴as justification for not including associated cost of capacity expansion. The conclusion drawn in the report is misleading because of differences between the data in the report and the FR/EIS.

This is further complicated by the TVA concentration on identification of impacts on average rates instead of on the increased cost specifically for the increased tonnage. By averaging increased cost over a larger number of tons, the fact that revenue from the increment of traffic does not justify the incremental cost, is not revealed.

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The TVA/Marshall University report, used an algorithm based on averages to estimate maximum capacity and to present a capacity analysis. In the case of rail, just because a rail link is installed and is theoretically capable of averaging X trains a day, does not mean that it will always do so. Trains might have varied origins and destinations hundreds of miles from the link in question. Trains have to travel on other segments and make stops at other locations. They will have schedules, requirements, and events, which might make use of the link in question somewhat of a random event.

When there is more than one train, you cannot reliably schedule use of a rail link based on the average duration of a preceding link. Thus, you cannot use average task duration to plan schedules for complicated transportation systems when there is randomness and uncertainty in the duration of activities. Uncertainties elsewhere in the system must be taken into account.

Queuing theory suggests an alternative. You determine the optimum amount of capacity by looking at the economics. In complex systems this is usually done with simulations. Personal Computer based tools exist which are designed to assist in the solution of this type of problem. ¹⁵ With proper tools, capacity can actually be viewed as an economic concept.

In economic terms, the cost of capacity is incurred in the form of decreased efficiency, or as an alternative investment to preserve the level of efficiency. The appropriate test to determine whether an investment in capacity should be made is not based on the impact it will have on average rates, but an analysis of incremental cost compared to incremental revenues. The

¹⁴ Freight Railroading: An Application to The Snake River Basin, The Tennessee Valley Authority Knoxville, Tennessee and The Center For Business and Economic Research Lewis College of Business Marshall University Huntington, West Virginia July, 1998

¹⁵ MultiRail®'s users include a majority of the North American Class I freight railroads. Licensees include railroads such as BNSF, BC Rail, Canadian National, Canadian Pacific, Consolidated Rail Corporation, CSX, Kansas City Southern, Norfolk Southern, Transportacion Ferroviaria Mexicana, FerroMex and Union Pacific. Smaller railroads have also benefited from MultiRails capabilities.

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TVA analysis draws conclusions based on average rate impacts and is silent on the real economic efficiency criteria. This is very important because costs were elected to be used by the Corps, not rates. It is also important because a fundamental purpose of NED analysis is to seek efficiency.

DELAY EFFECTS AND EMISSIONS IGNORED

Delay itself has unmentioned external costs not captured in how much the operator has to pay because his equipment is delayed, rerouted or is in gridlock. These non-quantified external costs occur in the form of noise, increased hydrocarbon emissions and increased risk to public safety. Since the Corps didn't estimate these externalities for the Snake River dam breaching we referred to another TVA report, referred to here as the Bray - Burton study¹⁶. It used a sample of 51 origination-destination combinations on the Tennessee River, to estimate the pollution abatement expenditure that would be required if each tow stayed on the river and compared it to the pollution abatement expenditure that would be required if the cargo shifted to the next least costly overland routing.¹⁷ This analysis was based on actual 1996 traffic flows and incorporated any truck hauls that were required from the actual shipment origins or to actual destinations.

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A common notion in the area served by the Snake Waterway has been that a comparison of emissions between barge and rail would be an acceptable rule of thumb basis for estimating a net change in emissions relating to drawdown. This may be due in part to a non-Corps study of the Snake River dam breaching¹⁸ in 1998 which concluded most of the tonnage displaced from barge would be moved by rail as the most likely least cost choice. However, after completion of the EWITS report, the Corps and others found that the most likely alternative mode for most of the displaced tonnage would be truck haul to a more distant barge loading point. Therefore, given this new information the reasonable comparison for estimating emission effects would be truck-barge to truck-barge with longer truck links in the post drawdown case.

The TVA Bray - Burton study estimated that the average net pollution abatement savings attributable to shipment by barge were \$1.05 cents per ton. The analysis documented that the average barge routing resulted in significantly less fuel consumption and pollutant emissions than an overland route. Thus, when commercial navigation is used, the magnitude of expenditures necessary to comply with nationally mandated air quality standards is reduced. We conclude that not only has the cost of delay been ignored in the FR/EIS, but the pollution cost has as well.

¹⁶ The Undervalued Social Benefits of Water Transportation, Tennessee Valley Authority, River Operations, Navigation and Structures Engineering, Larry G. Bray, Ph. D., Mark Burton, Ph. D., Chrisman Dager, M.B.A., Ron Henry, M.A., M. Carolyn Koroa, M.S., June 1998

¹⁸ Impacts of Snake River Drawdown on Energy Consumption and Environmental Emissions in Transporting Eastern Washington Wheat and Barley, WSU, EWITS Research Report #23, April 1998

19, 20 Our concerns with limitations of the Corps study extend also to issues of public safety. The EIS erroneously states rail and barge accident rates are almost identical¹⁹. Our objection is directly supported by a recent report by the Transportation Research Board of the National Research Council²⁰. That report referenced national data available for 1991 which showed 1,194 rail related fatalities compared to 8 for barge. There were 149 times more fatalities for rail while rail tonnage was 8% less. Regarding the combined total of fatal and non-fatal injuries, there were 23,460 for rail and 23 for barge, about 1,000 times more for rail. The 1991 data indicates that with increased rail tonnage associated with dam breaching that one could expect an increase of 1 fatality and 22 injury accidents annually.

In the referenced National Transportation Safety Board report, there is a discussion of a study by the Federal Highway Administration²¹. The study evaluated deaths and injuries based on how much people are willing to pay to protect themselves. Average costs were as follows:

Cost per fatality	\$2,300,000
Cost per non-fatal injury	\$ 46,000

One additional fatality per year and 22 non-fatal accidents would cause an increased expenditure of \$3.3 million annually. As now presented, the draft FR/EIS treats the increased public risk of rail transportation as an uncounted cost.

21, 22 Another inaccurately reported economic consequence of dam breaching is increased threat to public safety caused by highway congestion from increased truck traffic. Our concern is that loading of existing routes with 71,265 added truck trips per year will cause traffic flow to be slower. The EIS maintains highway congestion will not increase if highways are improved, but they left out the cost of doing anything. A longer time in route means an overall increase in emissions. The magnitude of the potential economic cost associated with the increased risk to public safety is worthy of study and needs to be addressed in the FR/EIS. We suggest that the EIS will not be complete until the Corps includes the necessary infrastructure costs, or estimates the public safety consequences if improvements are not made.

23, 24 BARGE HAUL EFFICIENCY NOT ESTIMATED

Line-haul barge transportation is considerably more fuel efficient when compared with rail or truck carriage. Waterborne transport on the most fuel efficient river segment is more than three times as efficient as the most fuel efficient railroad and more than ten times as efficient as truck transportation on a ton-miles per gallon basis. However, there is considerable variation in the level of fuel efficiency within the individual modes. Barge fuel efficiency varies based on river segment, and railroad fuel efficiency varies by carrier. For barge

¹⁹ EIS page 5.8-14

²⁰ Paying Our Way: Estimating Marginal Social Costs of Freight Transportation, Rreport No 246 TRB NRC, National Academy Press, Washington DC 1996.

²¹ The Costs of Highway Crashes, FHWA, US DOT, 1991

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shipments, the TVA estimate nationally is 591 ton-miles per gallon.²² TVA's estimate of Ohio River fuel consumption stands at 555 ton-miles per gallon, while the Corps Huntington District's independent estimate is 588 ton-miles for each gallon of fuel expended. In contrast to this, conclusions of recent regional studies specifically related to drawdown erroneously treated fuel efficiency of alternative modes as almost equal (372Btu/ton-mile for barge and 374 Btu/ton-mile for rail). We believe the Corps needs to reevaluate fuel efficiency specifically with regard to the fleet and tow size used on the Snake River inland system.

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INCONSISTENCY IN TONS DISPLACED

The capacity cost used in the TVA/Marshall University report was \$71.6 million including interest at 8%. This is about 42% higher than the cost on the Corps FR/EIS. It would appear based on this, that the TVA/Marshall University calculation of incremental cost expressed on a cost per ton or cost per ton-mile basis would have been overstated. However, this did not happen because the TVA/Marshall University calculation used a higher ton-mile adjustment which was inconsistent with the FR/EIS. Specifically, the TVA/Marshall University report used 2.7 million tons displaced to rail while the FR/EIS used 1.1 million.

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INCREMENTAL COSTS INCOMPLETE

Perhaps the most significant caution in use of the TVA/Marshall University findings is that the TVA/Marshall University report estimated rate impacts instead of analyzing the increased cost per ton and allocating it to just the increment of new tons. An incremental comparison would have led them to conclude that some of the capacity expansion is irrational leading to some of the tonnage being diverted elsewhere

Some possible implications drawn from review of the TV/Marshall University study are:

- TVA capacity estimates based on the average maximum load of system components is questionable.

- Conclusions drawn by substituting average rates for a comparison of incremental costs is not valid as a justification for leaving associated cost of infrastructure out of the NED analysis.

- Leaving associated cost of infrastructure out of NED effects may have caused displacement of some tonnage to alternative routes not to be recognized.

- NED economic opportunity cost of losing the navigation system has been underestimated in companion DREW studies and in the FR/EIS.

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ASSOCIATED COST INCONSISTENT

In contrast to the transportation analysis, as part of the dam breaching option, the approach used for hydropower and irrigation both include the associated non-federal cost as part of the

²² For a comprehensive description of TVA's Barge Cost Model see *Missouri River Transportation Rate Analysis*, Vol. I, U.S. Army Corps of Engineers, 1997.

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cont.

NED effect. In both cases, the associated costs are explicit. In the case of hydropower they are represented by increased operational cost of non-federally owned generation facilities as shown in Table 3.1-11. In the case of irrigation the associated costs are represented by loss of irrigated farmland value, cost of municipal and industrial pump stations, and cost of privately owned wells.

COMPENSATION COSTS

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Section 13.3 describes compensation possibilities in the event of dam breaching. One such possibility is that losers will be made whole. Unfortunately, the amount of loss in terms of navigation cost is \$24 million annually. If dam breaching happens, all of the increased cost of transportation will eventually be passed on to the shippers. Part of the increased cost will be the expanded capacity that will be necessary. The cost of expanded capacity needs to be included in estimated compensation costs.

We suggest the way to compensate for transportation losses would be to extend a guarantee to all of the ports, industries, farms, and others. Any federal authorization should specifically state that any dam breaching plan shall include a guarantee that post-project transportation costs will not exceed pre-project costs. To us this will minimize the pain and dislocation but even with full compensation, we will still be on record as being opposed to dam breaching. With full financial compensation, there are still too many uncertainties, and too many social and economic disruptions, for us to view dam breaching as an acceptable option.

CONCLUSION

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The transportation analysis in the FR/EIS economic appendix is incomplete in its treatment of "unresolved issues". The Corps treats many of them as work in progress so we will reserve our comments until we see their treatment in a future draft. In the FR/EIS, some important assumptions are open to question and cause us great concern. The Appendix overall is inconsistent in application of the associated cost concept and inconsistent with agency guidance on the subject. As a consequence the NED effects of dam breaching have been significantly understated.

The FR/EIS also used an expedited evaluation procedure that did not properly identify delay effects, safety impacts, or emissions effects. This lack of recognition of externalized and associated costs may have caused possible diversion of commodities to non-Columbia River ports to be ignored. This possible error in export routings for some of the commodities caused other issues such as capacity problems elsewhere, and safety related traffic problems to be left out of the FR/ EIS.